1189 Issued November 19, 1909.

U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF EXPERIMENT STATIONS—BULLETIN 220.

A. C. TRUE, Director.

SECONDARY AGRICULTURAL EDUCATION IN ALABAMA.

BY

C. J. OWENS,

President of the Southeast Alabama Agricultural School, Abbeville.

WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1909.

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Office of Experiment Stations,
Washington, D. C., June 15, 1909.

Sir: I have the honor to transmit herewith a report by President C. J. Owens, of the Southeast Alabama Agricultural School, on the Congressional district secondary agricultural schools of that State. This report was prepared under the direction of D. J. Crosby, of this Office, and deals with the history, legislation, organization, and equipment of these nine schools, with an estimate of their influence on the agricultural and educational work of the State. In view of the great interest now obtaining in the subject of secondary agricultural schools and the desire of school officers and others for concrete information as to methods of organizing, courses of study, needed equipment, and cost of such schools, I recommend the publication of this report as Bulletin 220 of this Office.

Respectfully,

A. C. True,
Director.

Hon. James Wilson,
Secretary of Agriculture.

CONTENTS.

ILLUSTRATIONS.

SECONDARY AGRICULTURAL EDUCATION IN ALABAMA.

INTRODUCTION.

Pursuant to an act of the Congress of the United States, approved July 2, 1862, the general assembly of Alabama, by an act approved February 26, 1872, established the Agricultural and Mechanical College of Alabama (Alabama Polytechnic Institute) at Auburn, in Lee County, for the benefit of agriculture and the mechanic arts.

In recognition of the value to the State of the experiment station at Auburn, in less than a score of years from its establishment, a movement was inaugurated for the location of branch agricultural experiment stations and agricultural schools for the purpose of making rural life more attractive and for the upbuilding of the farming interests of the State.

Alabama was the pioneer in bringing into existence a system of congressional district agricultural schools. This work was begun in Alabama seventeen years before the system was established in Georgia, and Alabama and Georgia are the only States in the United States which have as a part of their educational system a branch agricultural experiment station and agricultural school for each congressional district.

No feature of state education in Alabama, during the last twenty years, has been watched more closely or by a larger portion of the people. That these schools have borne with credit the searching scrutiny and criticism of people in all paths of life is in itself an evidence of their value. They have accomplished results beneficial beyond question to agriculture, Alabama's preeminent industry. The experiment stations have practically illustrated the benefits resulting from intelligent, scientific agriculture in the various seed and fertilizer tests, in the rotation of crops, in seed breeding, and in exhibiting the adaptation of the different types of soil to the production of the various crops.

LEGISLATION.

The Alabama system of congressional district agricultural schools was initiated under the provisions of a bill "to establish a branch agricultural experiment station and branch agricultural school in north Alabama," which was approved February 28, 1889. Under

this act two branch agricultural schools and experiment stations were established. The bill provided that the commissioner of agriculture and the director of the experiment station at Auburn should locate the stations and schools. Accordingly one was located at Athens and the other at Abbeville. It was provided that the board of control for each institution should consist of the commissioner of agriculture, the director of the experiment station at Auburn, and five progressive farmers. The five for north Alabama were to be farmers who were actually engaged in cultivating Tennessee valley lands, and the five for southeast Alabama those who were actually engaged in cultivating red pine lands. The five members of each board were to be appointed by the governor, and three of them were to reside within 10 miles of the stations. The boards of control were given the power to elect presidents, teachers, and directors, and to manage the schools and stations as they should think best. For the first year the State appropriated $3,000 to each school, and for every year thereafter $2,500, payments to be made quarterly. The board of control was given authority to purchase lands, not exceeding 40 acres for each station, and to construct the necessary buildings and other improvements. It was provided that experiments should be made at the stations to advance the interests of scientific agriculture and that chemical analyses should be made by the state chemist, under the supervision of the commissioner of agriculture.

With one exception the schools and stations located at Abbeville and Athens by the above act were the first secondary agricultural institutions for white students receiving state aid to be established in the United States.[a] The act establishing these schools was amended on February 13, 1893, the amendment providing that the schools should receive $3,000 annually and that the board of control be authorized to purchase 80 acres of land for each school.

Another act of the general assembly to establish a branch agricultural school and experiment station in northeast Alabama, to be located by the governor, the state superintendent of education, and the commissioner of agriculture, was vetoed by the governor, but passed both houses by the constitutional majority on February 21, 1893. Under this act a school was located at Albertville, on Sand Mountain. On the same date a bill was also approved establishing a branch station and school in southwest Alabama, which was located at Evergreen. The two bills provided for boards of control to be composed of the commissioner of agriculture, the director of the experiment station at Auburn, and five progressive farmers for each school, with the same qualifications as for the two schools established in 1889. The boards of control were given the same

[a] The Minnesota School of Agriculture at St. Anthony Park was established in 1888.

powers as under the act of 1889, to elect officers and teachers, to manage the school and station, to purchase lands—80 acres for Albertville and 50 acres for Evergreen—to construct buildings and improvements, and to cause experiments and chemical analyses to be made.

Still another act, approved February 4, 1895, provided that 25 cents per ton—one-half the amount of the "tag tax" on all fertilizers sold or exchanged in the State—should be appropriated and applied in equal parts to the support of the four agricultural schools and stations located at Abbeville, Athens, Albertville, and Evergreen, and to any other branch agricultural schools and stations created afterwards by the legislature of the State.

It will be noted that this act anticipated the establishment of other branch agricultural schools and stations. This indicates that at this early period in their existence there was a general recognition of their value. The last-named act, however, marks the beginning of a degree of opposition to the system of schools, encouraged in some instances by men who professed to believe that the tag tax was a scheme of class legislation calculated to work a hardship upon the tillers of the soil. The schools by dint of merit, in a great measure, brought this opposition to naught, but it continued to be felt until the general assembly, in 1907, again appropriated the funds for the support of these schools from the general funds of the State. Governor Comer in his inaugural address for that year said:

> The tag-tax fund was established years ago. While many may question the wisdom of the tax, no one can question the wisdom of the application of the tax. With it you have built up nine great agricultural schools in the nine congressional districts, and the Polytechnic Institute, and they stand a living monument to the wisdom of the fund.

An act was approved February 18, 1895, which established five additional agricultural experiment stations and agricultural schools, to be located in the first, fourth, fifth, sixth, and ninth congressional districts of the State. It was provided that these schools and stations should be located by the governor, the superintendent of education, and the commissioner of agriculture. The schools were established in the order named, at Jackson, Sylacauga, Wetumpka, Hamilton, and Blountsville. Boards of control were provided for, as for the four schools first established, with power to elect officers and teachers, to purchase lands not to exceed 80 acres for the sixth district and 50 acres for each of the other districts, and to construct necessary buildings and improvements. An amount equal to that appropriated for each of the other district agricultural schools of Alabama was provided for these new schools, on condition that no school and station should be established in any of said districts until real estate or buildings of not less than $5,000 in value should have

been donated and conveyed to the State for the use of such stations and schools.

Since carrying out the provisions of this act, Alabama has supported nine agricultural schools and experiment stations, one for each congressional district. These nine schools were brought under the provisions of an act approved January 30, 1897, which regulates the appropriation and pertains to the management of the schools and stations. Under this general act the appropriation was made $2,500 annually to each school, to be paid quarterly, with the condition that not less than $500 of the sum should be used in maintaining, cultivating, and improving the farms, and in making agricultural experiments. The boards of control were to consist of the commissioner of agriculture, the superintendent of education, and five additional members, a majority of whom should be farmers. This was later amended to provide that the boards of control should consist of the governor, the commissioner of agriculture, the superintendent of education, and two local members for each district.

Under this bill it was further provided that the president of each school should be the director of the local experiment station, that bulletins should be published from time to time giving information for farmers and the results of experiments, that practical and scientific agriculture should be taught at all the agricultural schools, that all students over 10 years of age receiving free tuition should be required to take the course in scientific agriculture and horticulture, and that all students over 10 years of age should be required to take the course in floriculture. No school could receive the appropriation unless actually conducting an agricultural experiment station and agricultural school. A normal feature was introduced in the requirement that a course of study be adopted with a view to educating and training pupils to be teachers in public schools of Alabama, and granting them suitable diplomas upon the completion of the course of study. This general law went into effect April 2, 1897.

While not a part of the original scheme for the congressional district agricultural schools, it is of interest to note that on February 15, 1897, an act was approved establishing two branch agricultural experiment stations for the colored race. One was located at Tuskegee, in connection with the Tuskegee Normal and Industrial Institute; the other at Montgomery, in connection with the Alabama Normal School for Colored Students.

EDUCATIONAL AWAKENING.

The past four years marks an epoch in the educational history of Alabama. The appropriations for education covering this period aggregate an increase of nearly $3,000,000 over the old appropria-

tions. In his message to the general assembly, Governor Comer made a strong recommendation that the appropriation for the agricultural schools should be increased. The following is quoted from this message:

The nine agricultural schools, located one in each of the nine congressional districts, are doing a great work and should be encouraged. I have visited the schools at Abbeville, Henry County, and at Albertville, Marshall County, and was very much impressed with the magnitude of the successful work they were doing, and unhesitatingly recommend not only their continuance, but their enlargement. The money allotted to these schools, $2,500 a year each, is the least appropriation for equivalent work of any benevolent or educational work of the State. They are asking you to increase this appropriation. I compliment them on the modesty of the request, and am sure the State could not authorize a more economical and profitable expenditure. These schools are located in different parts of the State, generally where board is cheap, and they furnish the boys and girls outside of the cities not only with the most economical agricultural lessons, but also with the best substitute for high schools.

On March 2, 1907, a bill was approved making the appropriation for each of the agricultural schools, $4,500 a year, out of the general funds of the State. It is required that $750 of this amount be expended on the experiment station. This is an increase of $2,000 for each school over the old appropriation.

The main building at Wetumpka having been destroyed by fire and the main building at Athens by a cyclone, the legislature came to the rescue by appropriating $10,000 for the former school and $6,000 for the latter.

ORGANIZATION OF THE DISTRICT AGRICULTURAL SCHOOLS.

The code of Alabama, which was approved July 27, 1907, and which went into effect May 1, 1908, devotes sections 59 to 69, inclusive, of the political code, to the agricultural schools and experiment stations. The eleven sections cover the establishment and the basis of control as explained above, and codify the laws under the following heads, viz:

59. Branch agricultural experiment stations and schools for every congressional district; how governed and controlled.

60. Appropriations out of agriculture fund; when prorated; as amended March 2, 1907.

61. Not less than $750 to be used in making agricultural experiments.

62. Treasurer to give bond in sum of $1,000.

63. Director of school.

64. Bulletins to be prepared and published.

65. President to make annual report to the superintendent of education and to the commissioner of agriculture.

66. President to make quarterly report to the board as to finances.

67. Scientific agriculture to be taught.

68. Appropriation withheld unless agricultural experiments are conducted by the school.

69. Course of study and training; certificate of proficiency or diploma.

Section 61 of the political code is of special interest, as it indicates the connection which exists between the Alabama Polytechnic Institute at Auburn and the nine branch schools and stations. It is as follows:

Not less than $750 shall be used in maintaining, cultivating, and improving the farms, respectively, and in making agricultural experiments thereon under and by direction of the board of control and the professor of agriculture of the Alabama Polytechnic Institute. The course in scientific agriculture and floriculture shall be formulated for the schools and experiment stations by the said professor of agriculture of the Alabama Polytechnic Institute. When on official visits, said professor of agriculture shall be paid by the board of control his traveling expenses thus incurred.

BOARDS OF CONTROL.

The boards of control include the following state officials: Hon. B. B. Comer, governor; Hon. H. C. Gunnels, superintendent of education; Hon. J. A. Wilkinson, commissioner of agriculture; and Hon. W. F. Feagin, secretary-treasurer. In addition to these general officials there are two local members for the board in each district, as previously explained.

COURSE OF STUDY.

The course of study, made uniform for the nine schools, has been recently revised by a committee appointed for the purpose consisting of President C. J. Owens, President J. B. Hobdy, and Prof. J. F. Duggar, director of the Alabama Experiment Station. Their report, which follows, was unanimously adopted by the Association of Agricultural Schools of Alabama, to go into effect with the beginning of the school year 1909. It is based on an elementary course of seven grades.

AGRICULTURAL-SCIENTIFIC COURSE.

First Year.

FIRST TERM.

	Hours per week.
Agriculture:	
Agriculture for Southern Schools	3
Practical work	1
Science—Physiography	2
History—English history	3
Mathematics:	
Arithmetic	5
Algebra	5
English—Grammar reviewed, rhetoric and composition	5
	24

SECOND TERM.

	Hours per week.
Agriculture:	
Agriculture for Southern Schools	3
Practical work	1
Science—Physiography	2
History—English history	3
Mathematics:	
Arithmetic	5
Algebra	5
English—Rhetoric and composition	5
	24

SECOND YEAR.

FIRST TERM.

Agriculture:	
Soils and crops	5
Practical work	1
Science—Physiology	4
History—Ancient history	3
Mathematics—Algebra	5
English—Rhetoric and composition	5
	23

SECOND TERM.

Agriculture:	
Botany	5
Practical work	1
Science—Physiology	4
History—Ancient history	3
Mathematics—Algebra completed	5
English—Rhetoric and composition	5
	23

THIRD YEAR.

FIRST TERM.

Agriculture:	
Stock lectures, agricultural literature	2
Practical work	1
Science—Physics and laboratory work	5
History—Mediæval history	3
Mathematics:	
Arithmetic reviewed	3
Plane geometry	5
English—English literature	5
	24

SECOND TERM.

Agriculture:	
Horticulture	2
Botany	3
Practical work	1
Science—Physics and laboratory work	5
History—Modern history	3
Mathematics—Plane geometry	5
English—English literature	5
Pedagogy—Theory and practice of teaching, school laws	3
	27

Fourth Year.

FIRST TERM.	Hours per week.
Agriculture—Dairying, soils, and fertilizers	5
Science—Chemistry and laboratory work	5
History—American and civics	3
Mathematics:	
Solid geometry	3
Plane trigonometry	2
English—American literature	5
	23

SECOND TERM.	
Agriculture—Agricultural literature	5
Science—Chemistry and laboratory work	5
History—American and civics	3
Mathematics—Plane trigonometry, surveying	5
English—American literature	5
	23

AGRICULTURAL-CLASSICAL COURSE.

First Year.

Omit physiography and history from agricultural-scientific course and substitute first-year Latin, 5 hours.

Second Year.

Omit physiology from agricultural-scientific course and substitute Cæsar, 5 hours.

Third Year.

Omit stock lectures and agricultural literature from agricultural-scientific course and substitute Cicero, 5 hours.

Fourth Year.

Omit soils and fertilizers and agricultural literature from agricultural-scientific course and substitute Virgil, 5 hours.

In the course in agriculture the student will be required to read bulletins on the subjects of study from the state stations and from the United States Department of Agriculture. In the course in English the student will be required to do the reading prescribed for college entrance. Penmanship and orthography will be required throughout the courses. The regulation requiring the students to work two hours a week on the experiment station will be rigidly enforced. At the option of any institution, bookkeeping, with special reference to farm accounts, may be substituted for agricultural literature.

OTHER POINTS IN COMMON.

In addition to the features which the schools have in common, already mentioned, a few others should be emphasized before sketching the history of the several schools and stations.

(1) The object of these schools may be briefly stated as follows:

(*a*) To turn out young men well grounded in the underlying principles of scientific and practical agriculture, that they may make successful planters and advance the farming interests of the State.

(*b*) To give such instruction and training as will fix in the minds of the young men high ideals of practical country-life education, as is done in the best agricultural high schools under the name of "agriculture and home economics."

(*c*) To educate and fully equip young men and women for efficient teaching in the public schools of the State.

(*d*) To prepare those who desire to enter higher institutions of learning.

(*e*) To give to all a thorough, practical education, and to instill in them a broad and correct idea of true American citizenship.

(2) All the schools are under the same executive committee, with headquarters in Montgomery. William F. Feagin is the secretary-treasurer of this committee and is the custodian of the funds of the nine schools. The nine presidents send their monthly reports and pay rolls to the secretary-treasurer. All checks for salaries, supplies, and incidentals are issued monthly by the secretary-treasurer.

(3) The schools are conducted for the same length of time each year, one hundred and eighty days of actual school work constituting a session.

(4) The schools are coeducational. As a number of young ladies are enrolled, courses are offered in all the schools in music, expression, and art. The teachers in these departments are given the income from class fees for their services. These departments are well patronized, and the teachers in charge possess high qualifications for their work.

EQUIPMENT AND WORK OF THE INDIVIDUAL SCHOOLS.

FIRST DISTRICT.

Faculty: W. Franklin Monk, M. S., president (Alabama Polytechnic Institute); W. F. Nichols, B. S., agriculturist (Agricultural College of Mississippi); T. Calvin Stephens, A. M.; and D. W. McLain, B. Ph.

The school is located at Jackson, in Clarke County, on the Tombigbee River, on a plateau 300 feet above the river. The school was opened for students on September 16, 1896.

The experiment station of 49 acres is equipped with most modern farming implements and provided with live stock. The industrial department includes (1) a school garden, constituting a laboratory to accompany the text-book work in agriculture, horticulture, and floriculture; (2) the farm, equipped with dwelling, barn, live stock, farm tools, and dairy; (3) a well-equipped wood shop on the campus. On the farm seed and fertilizer tests of special value to the district are made; in the wood shop pupils take lessons in woodwork from drawings and in working with lathes, saws, molders, shapers, and other tools. The shop has an equipment worth $1,500. Instruction is also offered in the commercial branches. The school has its students organized in literary societies. The library consists of about 600 volumes and many agricultural reports. The main building (Pl. I, fig. 1) is a handsome structure, fitted with modern school furniture. The people have shown a fine spirit in the active interest they have taken in the work of the school.

SECOND DISTRICT.

Faculty: Henry T. Lile, president; A. H. Chapman, agriculturist; Miss Vida Jones and Miss Susie Carmichael.

The school is located at Evergreen, in Conecuh County, on the highlands of southwest Alabama. The perfect system of natural drainage and the invigorating air and pure water have made Evergreen a desirable winter resort. The school opened in the fall of 1893.

The main building was erected on a beautiful plat, consisting of 10 acres of well-shaded land, at a cost of $12,000. It is a three-story structure, the first story of brick, and is equipped with water system and electric lights. The library consists of 500 volumes. The experiment station has a good dwelling house, barn, farming tools, and a pair of horses. Every student is required to take the agricultural course in full. Under its present management it is believed that the school will have a far-reaching effect upon the agricultural development of the district. The president will make a thorough campaign through the several counties and endeavor to have the school and station brought into closer relation to the entire congressional district.

THIRD DISTRICT.

Faculty: Clarence J. Owens, A. M., president (George Washington University); J. Buhrman Espy, M. S., agriculturist (Alabama Polytechnic Institute); Miss Martha Armstrong (Peabody College for Teachers, University of Nashville); Dow Levi Perry, jr., A. B. (Southern University).

FIG. 1.—MAIN BUILDING, FIRST DISTRICT AGRICULTURAL SCHOOL, JACKSON.

FIG. 2.—MAIN BUILDING, SOUTHEAST AGRICULTURAL SCHOOL, ABBEVILLE.

This school is located at Abbeville, Henry County, in the "wire-grass section" of the State (Pl. I, fig. 2). The school has the distinction of being the first of its type to be established in the United States, and has been in operation for a score of years. The first president was Prof. Joseph S. Espy, a graduate of Emory and Henry College, Virginia, whose son has served for a number of years as the agriculturist in charge of the experiment station. Judge John B. Ward, who was the champion of the measure establishing the school, is a resident of Abbeville. Prof. J. Vandiver Brown, now superintendent of schools of Dothan, Ala., served as president of the school for a period of nine years.

The main building is a brick structure, built in the best style of modern school architecture, with assembly hall, class rooms, laboratory, library, art, and music rooms. The school has a well-equipped physical and chemical laboratory. The library contains 2,000 volumes and many agricultural reports. The students are organized in athletic, literary, patriotic, and Christian associations. A commercial department is in successful operation. The students are under military discipline, in a well-drilled cadet battalion. Funds have been secured for the erection of a library building to cost $5,000.

The experiment station is equipped with dwelling, barns, many modern farming implements, and live stock. The station owns a registered Shorthorn bull, registered Duroc-Jersey hogs, a fine lot of White Wyandotte chickens, an incubator, and a brooder. Bulletins of the experiments are published regularly and distributed throughout the district. This school was victorious in 1908 in the interagricultural school oratorical contest and also in the interagricultural school essay contest, both dealing with agricultural subjects. The Alabama Agricultural Association awarded the school a diploma on results attained with the "Williamson method" of cultivating corn and also on long-staple cotton. In 1908 it also awarded the school a cash prize on its exhibit at the state fair. The work of the station has been directed to such experiments as would be beneficial to the farmers of this congressional district. The following subjects have received special investigation:

(1) Chemical needs of the soil.
(2) Remedies for physical defects of the soil.
(3) Improvement of worn land.
(4) Rotation of crops.
(5) Variety tests of corn.
(6) Variety tests of cotton.
(7) Fertilizer tests with corn.
(8) Fertilizer tests with cotton.
(9) Experiments with the different forage crops and grasses to see which are best adapted to this section.
(10) Theoretical and practical investigation in methods of cultivation.

Instruction is given by means of lectures, text-books, bulletins, and practical work on the farm. Last year students assisted in making nearly all of the experiments. The school has breeding plats of corn and cotton. In the school garden on the campus quite a number of cereals and garden crops were planted; all this work is done by the students (Pl. II). The students assisted in making a soil survey of the experiment station, under the direction of G. B. Jones, an expert in the employ of the United States Bureau of Soils. The following extract from a letter written by Hon. J. A. Wilkinson, commissioner of agriculture and industries, indicates the high grade work which is being done by the students of the school along the line of agriculture:

We have had under consideration and careful study the ten essays sent from your school, and five of our best men in the capitol have read over these essays. I leave the annotations on the covers of each piece that you may read and get somewhat the opinions of the five experts who took part in rendering the final decision in favor of the essay headed, "The Improvement of the Soil." After a conference of the entire committee, including myself, we have unanimously agreed that the above selection is the very best we can do, and the gentlemen suggest, and the whole department here concur, in asking you to have printed, in pamphlet form, all of these essays for circulation; as we are of the opinion that nothing could be done to so stir the youth to the study of these practical, beautiful, and, I might say, profound topics. Let us congratulate all of these young men on their most signal success. We confess that we have been astonished and delighted with these several products. The study of these essays will be to the betterment not only of the youth of the State but to our older people as well.

FOURTH DISTRICT.

Faculty: George H. Thigpen, president; E. W. Jenkins, agriculturist; R. O. Dykes, Ph. B.; Miss Sallie Donaldson, B. Litt. The agriculturist is a graduate of the Troy Normal College. He will take the summer courses at Cornell to further prepare himself for his duties.

This school is located at Sylacauga, Talladega County, among the foothills of the Appalachian Mountains. It was opened for students in September, 1897.

The main building is a three-story structure of Queen Anne architecture. It cost $32,000. The third floor is used for dormitory, and the first and second floors for recitation rooms, study hall, library, dining room, etc. The building is fitted with a water system and electric lights. Flourishing literary societies have been organized.

The farm is situated at the foot of Broadway, about 400 yards from the school building. It contains 40 acres. It is rolling in portions, giving excellent opportunity for scientific terracing. Other portions are low and level, and here is shown the good effects of underdraining. The station has two of the best mules, 6 years old, weighing 2,400 pounds All the implements, consisting of plows, harrows, etc., are of the approved modern types.

The school has apparatus for performing experiments in agriculture, chemistry, and physics. There is a good working library, which has

PLOWING 10 INCHES DEEP WITH TWO-HORSE DISK PLOW, EXPERIMENT STATION, SOUTHEAST AGRICULTURAL SCHOOL, ABBEVILLE.

FIG. 1.—FOUR-ACRE COTTON DEMONSTRATION PLAT WHICH YIELDED SIX BALES OF COTTON, FOURTH DISTRICT AGRICULTURAL SCHOOL, SYLACAUGA.

FIG. 2.—MAIN BUILDING, FIFTH DISTRICT AGRICULTURAL SCHOOL, WETUMPKA.

recently received a gift of 150 choice volumes. Arrangements have also been made for the further equipment of the library.

The students are taken to the fields by the teacher of agriculture, where they study the soil, analyze it, mix fertilizers, perform experiments, and make observations (Pl. III, fig. 1). The school not only trains the boys and girls in the principles of agriculture, but also interests the farmers throughout the district in the more improved methods. This year many farmers in the district have visited the farm and given evidence of interest in the work. The next bulletin will give in detail the methods of cultivation, the amount of fertilizers used per acre, the treatment of fruit trees, and various other experiments. That the farmers are interested is attested by the fact that these bulletins are eagerly sought for. The students are thoroughly interested in the subject of agriculture. The school is doing its part in the effort to bring about a still greater interest in the intelligent cultivation of the soil.

FIFTH DISTRICT.

Faculty: Leonard L. Vann, A. M., president; C. B. Haddon, B. S., agriculturist; E. E. Tarr, A. B., physical director; Florence Williams, director of the domestic science department; Harriette B. Brogdon, A. B.; and Lovie Irene Fielder.

The school is located at Wetumpka, on the Coosa River, near the geographical center of the State. It was established in 1895. This school has the most extensive equipment of any of the schools.

Through the earnest efforts of ex-President H. J. Willingham, the trustees, citizens, town authorities, the governor, and the legislature, the fifth district has the handsomest, most commodious, and best-equipped school building in the State (Pl. III, fig. 2). It has a very superior auditorium, with excellent library rooms, art rooms, music rooms, elocution rooms, domestic-science rooms, chemical and physical laboratory, class rooms, bathrooms, toilet rooms, gymnasium, president's office, society rooms, broad halls and stairways, and everything necessary to make the building safe, healthful, and attractive. The rooms and auditorium are furnished throughout in oak—single desks, opera chairs, and teachers' desks—and fitted with electric lights, steam heat, and sanitary sewerage. The building is of brick and concrete, three stories, and cost over $41,000.

The students are organized for athletic and literary culture. The general library is excellent and the school has also an agricultural library.

The experiment station consists of 80 acres of land, located near the school building. The soil came from the decay of the old granite rock, and ranges in texture from clay to sandy loam. The student has ample facilities for studying the various types of soils and their adaptability to the different crops of this section.

The farm is divided into two sections—one of 15 acres for experiments and the other of about 45 acres for general farming. The 15-acre piece is divided into plats of different sizes, which are used for experiments. The leading varieties of cotton, corn, oats, and vegetables are under experiment, and the student is given an opportunity to study their development. The remainder of the farm is devoted to general farm crops, and general methods of farming are employed in which the student takes part. The students are arranged in sections and do farm work of some kind each week. Bulletins are published regularly in which valuable experiments are reported in detail. The orchard contains pears, peaches, plums, apples, grapes, and other fruits.

In addition to the regular experiment station, the school maintains, within a few feet of the building, a school garden consisting of three-fourths of an acre, in which the students do all the actual work of preparing the soil and growing the crops. In this school garden may be found all the varieties of vegetables and many different flowers, as well as small plats of field crops and grasses. The advantages of such a garden may be briefly indicated:

(1) It affords a release from the routine of the schoolroom and puts the pupil out into the fresh air and sunlight.

(2) It teaches the composition and care of the soil, the best conditions of plant life, the value of fertilizers, seed selection, etc.

(3) It develops the sense of ownership and respect for property. In the care of their own plats the pupils fight common enemies and learn that a bad weed in a neglected plat may make trouble for many others.

(4) It forms a pleasant avenue of communication between the school and the home, relating them in a new and living way, thereby strengthening the public interest in the school.

SIXTH DISTRICT.

Faculty: H. O. Sargent, M. S., president and agriculturist (Alabama Polytechnic Institute); J. A. Johnson, A. B.; W. M. Sellers, A. B.; and Goldie Miller, B. S.

This school is located at Hamilton, Marion County, on the highlands of West Alabama, along the upper Buttahatchie River. The school was established in 1895, and has met with remarkable approval from people of all classes.

The main building is a neat two-story, eight-room structure, situated on a two-acre campus. It is well equipped. The school has a working library and a complete physical and chemical laboratory (Pl. IV, fig. 1). It has three well-organized literary societies. A teachers' training course is provided, which prepares students for the state examination and gives instruction in practical psychology and the methods of teaching all the subjects in the common school course.

FIG. 1.—GIRLS WORKING IN CHEMICAL LABORATORY, SIXTH DISTRICT AGRICULTURAL SCHOOL, HAMILTON.

FIG. 2.—MAIN BUILDING, EIGHTH DISTRICT AGRICULTURAL SCHOOL, ATHENS.

The farm has its own barn, lot, tool house, farming implements, wagon, and other equipment. On the station is a large young orchard of many varieties of fruit and a vineyard of more than a hundred vines. The student who helps to care for these learns in a practical way important lessons in pruning, cultivation, and care of the farm.

The experiment station devotes about 40 acres to experiments with cotton, corn, forage plants, and other crops. The student has an opportunity to see experiments illustrating the effect of crop rotation, fertilizer tests, and the growth of certain varieties of cotton, corn, grapes, fruits, leguminous plants, and the like. All pupils are required to do practical work in budding and grafting. The larger portion of the station is divided into plats containing one-fourth or one-eighth acre each, where the leading varieties of corn, cotton, wheat, and oats are being tested. Special attention is given to alfalfa, vetch, crimson clover, soy beans, and the different methods of fertilizing corn and cotton.

SEVENTH DISTRICT.

Faculty: J. B. Hobdy, M. S., president and agriculturist (Alabama Polytechnic Institute); Sylvester Greer; L. J. Fowler; Miss Amelia Kennedy; Miss Mary C. Winn; and Miss Alma Bishop.

The school is located at Albertville, in Marshall County, on Sand Mountain, a spur of the Cumberland Mountains. It is situated on a broad plateau, which slopes on the north to the Tennessee River, on the east to the valley of the Coosa River, on the south to the headwaters of the Warrior River, and on the west to Browns Valley. The school was established in 1893 and organized in 1894. William F. Feagin, the chief clerk in the Alabama department of education and the secretary-treasurer of the boards of control of the nine agricultural schools, was for a number of years the president of the school, being succeeded by the present incumbent in 1901.

The school and experiment station are located within the town limits of Albertville, the school grounds covering 2 blocks and the station 48 acres of very valuable land. The building is very commodious and is conveniently arranged. It is equipped with all necessary fixtures and laboratory apparatus and has a library well supplied with desirable literature.

This school has the largest enrollment of any of the nine schools. During the past session 282 pupils were enrolled, 15 counties of Alabama and 4 other States being represented in the student body. For the benefit of those who desire review work preparatory to taking the state examination, a special review course is offered. The students are well organized for physical and literary development.

Both theoretical and practical agriculture are taught (Pls. V and VI). Text-books on all branches of agriculture, including horticulture, floriculture, soils and crops, dairying, live stock, and agricultural chemistry, are taught in the school.

The station is the pupils' laboratory. The president of the school is the agriculturist and director in charge of the practical work. He has had training that especially fits him for giving practical instruction. There are about 40 acres in cultivation. On this land such experiments are being made as will advance scientific horticulture and agriculture. Bulletins of information to farmers, and showing the results of experiments conducted on the farm, are published in all the weekly papers of the district.

A certain amount of manual labor is required of all students. This work, as nearly as possible, is in direct line with the work in the classroom, and hence is strongly educational. The station is conducted as a model farm, being arranged in the manner and conducted according to the methods which are considered best suited to the peculiar conditions prevailing in northeast Alabama, and therefore best adapted to make farming in this part of the State remunerative and satisfactory. Students are encouraged to take the individual care of certain plats, or special crops, and opportunity is afforded them personally to prosecute experiments and investigations.

EIGHTH DISTRICT.

Faculty: J. M. Atkinson, B. S., president (Alabama Polytechnic Institute); H. K. Strickland, B. S., agriculturist (Clemson College, S. C.); Miss Sarah Bandy; and Miss Zula Lee, B. S. (University of Alabama).

The school is located at Athens, in the central part of north Alabama, equidistant from Nashville and Birmingham. It was established in 1889, and has the distinction of being one of the first two schools of its type to be established in the United States. Under the present system the school is working very effectively.

The school has a large new main building (Pl. IV, fig. 2) which cost $12,000 and is finely equipped. The president's home is on the campus. The school grounds consist of 13 acres, 6 of which is sward covered with a grove of original growth inclosed by a hedge of osage orange. The remaining 7 acres are devoted to experiments and gardens. The school maintains two literary societies and has a library. A teachers' review course is offered.

The experiment station consists of 150 acres, half of which is in cultivation, and is furnished with good mules and many farming implements of modern type. The station is situated in a section of the most fertile land in the State. All students are required to take scientific and practical agriculture, and male students are required to do actual labor on the farm. "The agricultural school, like all other new enterprises, has had to struggle for that prestige which it should have, sometimes without the sympathy and support it justly merits from the people of the district," but the beneficial influence of the

U. S. Dept. of Agr., Bul. 220, Office of Expt. Stations.

MEMBERS OF THE JUNIOR CLASS PRUNING THE VINEYARD OF THE SEVENTH DISTRICT AGRICULTURAL SCHOOL, ALBERTVILLE.

MEMBERS OF THE FRESHMAN CLASS COMPOUNDING FERTILIZERS, SEVENTH DISTRICT AGRICULTURAL SCHOOL, ALBERTVILLE.

school is being felt throughout the district, and its usefulness is being appreciated more and more as its graduates go into the field of teaching and other employment and show thorough preparation for taking the agricultural courses at the Alabama Polytechnic Institute.

The following subjects are fully investigated before the students:

(1) Chemical needs of the soil.
(2) How to remedy the defects of the soil.
(3) How to improve worn soil.
(4) Variety tests of corn and cotton.
(5) Fertilizer tests of corn and cotton.
(6) Experiments with various forage crops for this section.
(7) Rotation of crops.
(8) Practical investigation in methods of cultivation.

NINTH DISTRICT.

Faculty: E. A. Miller, M. S., president and agriculturist (Alabama Polytechnic Institute); S. L. Gipson, B. S.; B. L. Noojin, B. S.; Miss W. E. Chumley, B. S.; and Miss Marion Knapp, B. S.

President Miller, who serves as agriculturist, received his training for this work by a two-year undergraduate course and a one-year postgraduate course at the Alabama Polytechnic Institute.

This school is located at Blountsville, Blount County, in the highlands of north Alabama. It was established in 1895. Dr. J. A. B. Lovett served as president from 1899 to 1906, when he was succeeded by the present incumbent.

The main building is a commodious two-story structure, consisting of a large well-seated chapel, convenient and well-equipped section rooms, chemical laboratory, and library. A teachers' review course is offered. The students are organized for athletic and literary culture.

The farm consists of about 75 acres of land, has a good substantial farmhouse, barn, and up-to-date farming implements. Two horses, improved breeds of hogs, and chickens are kept on the farm.

The work in the subject of agriculture consists in the study of elementary texts on the subject, practical work in compounding fertilizers, grafting, seed selection, and methods of cultivation and harvesting (Pl. VII). Both theoretical and practical work is done in the allied subjects of chemistry and botany. "The pupils and the patrons of this district have a much greater appreciation of, and deeper sympathy with, the work of the school than in former years. The farmers of the district are taking advantage of the truths demonstrated on the farm, and through the pupils the school is impressing upon the people of the district the importance of improved methods and implements."

ASSOCIATION OF PRESIDENTS AND AGRICULTURISTS.

A movement, inaugurated by Hon. J. A. Wilkinson, commissioner of agriculture and industries, and which received the indorsement of Governor B. B. Comer, resulted in 1907 in the organization of an association of the presidents and agriculturists of the nine district agricultural schools of the State. The commissioner of agriculture and his staff and the director of the Alabama Experiment Station with his staff were made ex-officio members of the body. The organization of this association indicates in a great degree the recognition which has been given to this feature of the educational system of Alabama, as the members meet in convention twice a year, and all the expenses of the members are paid out of the agricultural fund of the State. The following officers have served from the beginning of the association: President, Hon. J. A. Wilkinson; vice-president, J. B. Hobdy; secretary, W. F. Monk.

The plans itemized below indicate the activities of the organization:

(1) The general education board is petitioned to provide the means for sending the graduate of each school who makes the highest grade in agriculture to the Alabama Polytechnic Institute.

(2) Congressmen are urged to vote for the Davis bill, which provides federal aid for the secondary agricultural schools.

(3) The association pledges its cooperation in the soil surveys which are being made in the State. Alabama's soil-survey law was approved August 13, 1907, and is the first state law in the United States which plans to cooperate with the Federal Government in making soil surveys. The following counties have been surveyed: Lauderdale, parts of Morgan and Madison, Marion, Lamar, Blount, Cherokee, Talladega, Bibb, Sumter, Perry, Autauga, Lee, Macon, Montgomery, Dallas, Butler, Henry, and parts of Mobile and Baldwin. Five other counties are now being surveyed: Colbert, Culman, Etowah, Calhoun, and Jefferson. W. G. Smith, who is in the employ of the United States Government as a soil expert, is an honorary member of the association.

(4) Arrangements are made for a joint exhibit from the schools at state fairs.

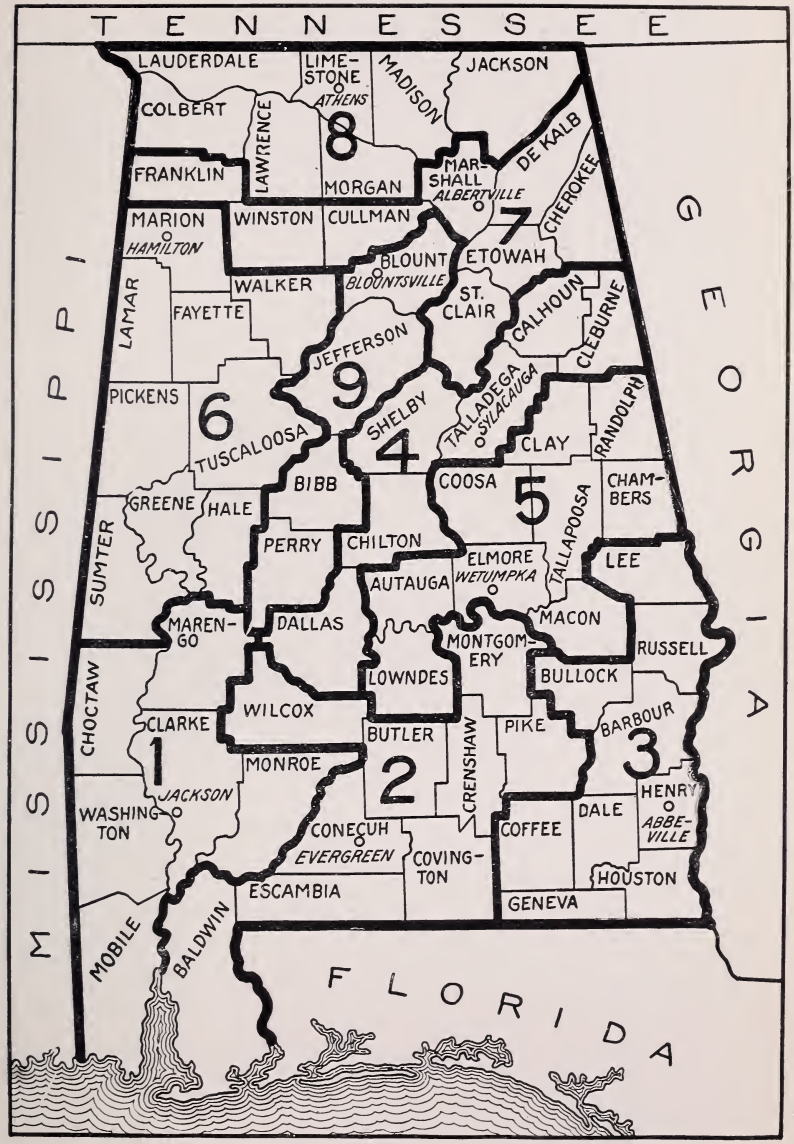
(5) Annual interagricultural school oratorical contest, with agreement that all speeches shall be on agricultural subjects. Medal offered by Commissioner J. A. Wilkinson.

(6) A committee consisting of President J. B. Hobdy, President C. J. Owens, and Director J. F. Duggar, of the Auburn Experiment Station, has recently revised the course of study for the schools. (See pp. 12–14.)

(7) The Plant Breeders' Association has been organized as an outgrowth of this association.

FIG. 1.—MOWING ALFALFA ON THE STATE FARM, NINTH DISTRICT AGRICULTURAL SCHOOL, BLOUNTSVILLE.

FIG. 2.—PUPILS PICKING COTTON ON THE STATE FARM, NINTH DISTRICT AGRICULTURAL SCHOOL, BLOUNTSVILLE.



MAP OF THE NINE CONGRESSIONAL DISTRICTS IN ALABAMA.

(8) The association is committed to the work of organizing boys' clubs for corn contests in 1909. A committee composed of Hon. J. A. Wilkinson, Director J. F. Duggar, Prof. J. J. Doster, the professor of secondary education at the University of Alabama, President C. J. Owens, and President G. H. Thigpen, has been appointed to plan a State and local constitution, with power to act in arranging the plan of work.

Much of the foregoing information may be concisely tabulated, as follows:

Names and locations of schools.[a]

Name.	Location.	Counties in district.
st district	Jackson	Choctaw, Clarke, Marengo, Mobile, Monroe, Washington.
Southwest Alabama	Evergreen	Baldwin, Butler, Conecuh, Covington, Crenshaw, Escambia, Montgomery, Pike, Wilcox.
Southeast Alabama	Abbeville	Barbour, Bullock, Coffee, Dale, Geneva, Henry, Houston, Lee, Russell.
Fourth district	Sylacauga	Calhoun, Chilton, Cleburne, Dallas, Shelby, Talladega.
Fifth district	Wetumpka	Autauga, Chambers, Clay, Coosa, Elmore, Lowndes, Macon, Randolph, Tallapoosa.
Sixth district	Hamilton	Fayette, Greene, Hale, Lamar, Marion, Pickens, Sumter, Tuscaloosa, Walker.
Northeast Alabama	Albertville	Cherokee, Cullman, Dekalb, Etowah, Franklin, Marshall, St. Clair, Winston.
North Alabama	Athens	Colbert, Jackson, Lauderdale, Lawrence, Limestone, Madison, Morgan.
Ninth district	Blountsville	Bibb, Blount, Jefferson, Perry.

[a] The location of these schools is shown in Plate VIII.

General statistics.

District.	Established.	Value of plant.	Acres.	Enrollment 1907–8.	Graduates 1907–8.	Since organization.
First	Feb. 18, 1895	$12,500	49	104	10	50
Second	Feb. 21, 1893	15,000	45	95	8	75
Third	Feb. 28, 1889	30,000	48	145	23	105
Fourth	Feb. 18, 1895	32,000	40	91	.....	60
Fifth	do	59,000	80	108	6	84
Sixth	do	18,350	80	224	12	60
Seventh	Feb. 21, 1893	22,000	55	282	12	76
Eighth	Feb. 28, 1889	25,000	163	115	9	51
Ninth	Feb. 18, 1895	8,500	80	200	6	40
Total		222,350	640	1,364	86	601

Financial statement, 1908–9.

District.	Income.		Disbursements to April 1, 1909.
	State.	Other sources.	
First	$4,500	$3,475.49	$7,235.09
Second	4,500	3,548.48	7,124.96
Third	4,500	4,769.47	6,994.84
Fourth	4,500	6,755.37	9,754.32
Fifth	4,500	6,457.00	7,986.22
Sixth	4,500	2,957.90	5,899.15
Seventh	4,500	4,403.07	8,289.14
Eighth	4,500	4,386.16	7,759.81
Ninth	4,500	1,757.92	6,083.42
Total	40,500	38,510.86	67,126.95

REPORT OF COMMITTEE ON EXPERIMENTS AT AGRICULTURAL SCHOOLS.

A general plan of agricultural experimentation for all the schools has recently been revised by a committee consisting of J. F. Duggar, J. B. Hobdy, and J. B. Espy, and their report, which follows, has been approved (January 30, 1909) by Commissioner J. A. Wilkinson:

In the opinion of the committee the main function of the district agricultural schools under the law is the teaching of agriculture. The prosecution of experiments is also required by law. If the experience of the agriculturists of these schools shows any conflict between experimentation and the teaching of agriculture, then, in our opinion, the teaching of agriculture must be given the place of first importance. But the law requires both functions, and the only way by which the number of experiments could be decreased to such a point as to make little demand on the time and funds of these institutions would be by an amendment to the present law, so that these institutions would be designated merely as agricultural schools, and not, as now, agricultural schools and experiment stations, such amendment making experimentation merely incidental, and thus allowing the school farms to be conducted as model farms under intensive cultivation and for profitable returns.

We recommend the execution of so much of the general plan of experiments adopted in January, 1904, as may be practicable for the conditions of each school. This plan called for the use of 100 plats for field crops, of which number 60 were to be occupied in prescribed experiments common to all the agricultural schools. The remaining 40 plats were to be devoted to experiments to be decided upon by each school according to its local needs.

In the case of these institutions that can not carry out the full programme of experiments we believe that the minimum number of plats of field crops should not be less than 70, barely to comply with the law. As the usual programme of experiments we recommend the following:

(1) Ten plats varieties of cotton, including the principal types.

(2) Six plats varieties of corn.

(3) Four plats varieties of wheat and oats.

(4) Twelve plats standard fertilizer experiments with cotton (Auburn plan).

(5) Twelve plats standard fertilizer experiments with corn and other standard crops.

(6) Twelve plats standard rotation experiments (Auburn plan).

(7) Four plats for soil or cultivation experiments. This in 1909 to consist of a test of the Williamson plan of corn culture.

(8) Ten to 20 plats devoted to any field or forage plants, investigating any question selected by each school.

(9) A demonstration of intensive farming by growing at least 1 acre of one or two of the standard crops, with a view to large yields, keeping a record of all items of cost. School garden and orchard.

In case any school is not able to have the full number of plats suggested, the omission might be temporarily made of the following:

(3) Varieties of wheat and oats.

(5) Fertilizer experiments on corn, etc.

(6) Rotation experiments.

(8) Reducing number of plats of field or forage plants if strictly necessary.

The "Auburn plan" referred to in the preceding report was devised by the Alabama Experiment Station. Professor Duggar gives the following as the object of the experiment:

(1) Yield of cotton cultivated continuously on the same plats with or without vetch (plats Nos. 3c, 6, and 8c), in comparison with cotton in two years' rotation (plats 2b and 7b), with two years' rotation (1a and 9a), and with three years' rotation (plats 10d, 11d, and 12d).

(2) Yield of corn cultivated continuously, with or without cowpeas between (plats 2b and 9b), and with three years' rotation (plats 10d and 11d).

(3) Increase in yield of cotton grown continuously on the same land, due to vetch. (Compare plat 6 with plats 3 and 8.)

(4) Increase in yield of corn, grown continuously, as result of cowpeas between the rows.

(5) Value of total crops during a series of years, preferably six, produced, respectively, by continuous culture, two years' rotation, and three years' rotation.

(6) The most practical rotation for improving land. (Fertilizers in kind and amount, to be same for every plat, and the same every year, and not to contain any nitrogen; no fertilizer or cowpeas to follow oats or between corn; and no fertilizer on oats or vetch mixed with oats.)

Plan of rotation outlined by Professor Duggar.

Plat.	1904.	1905.	1906.	1907.	1908.	1909.
1a	Cotton and vetch and oats, cut.	Cowpeas, cut.	Cotton and vetch and oats, cut.	Cowpeas, cut.	Cotton and vetch and oats, cut.	Cowpeas, cut.
2b	Cotton and vetch.	Corn and cowpeas.	Cotton and vetch.	Corn and cowpeas.	Cotton and vetch.	Corn and cowpeas.
3c	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.
4	Corn.	Corn.	Corn.	Corn.	Corn.	Corn.
5	Corn and cowpeas.	Corn and cowpeas.	Corn and cowpeas.	Corn and cowpeas.	Corn and cowpeas.	Corn and cowpeas.
6	Cotton.	Cotton.	Cotton.	Cotton.	Cotton.	Cotton.
7b	Corn and cowpeas.	Cotton and vetch.	Corn and cowpeas.	Cotton and vetch.	Corn and cowpeas.	Cotton and vetch.
8c	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.	Cotton and vetch.
9a	Cowpeas, cut.	Cotton and vetch and oats, cut.	Cowpeas, cut.	Cotton and vetch and oats, cut.	Cowpeas, cut.	Cotton and vetch and oats, cut.
10d	Corn and cowpeas.	Oats and cowpeas.	Cotton.	Corn and cowpeas.	Oats and cowpeas.	Cotton.
11d	Oats and cowpeas.	Cotton.	Corn and cowpeas.	Oats and cowpeas, picked.	Cotton.	Corn and cowpeas.
12d	Cotton.	Corn and cowpeas.	Oats and cowpeas.	Cotton.	Corn and cowpeas.	Oats and cowpeas.

EXAMPLES OF EXPERIMENTAL WORK.

In addition to this outline of experimental work for all the schools, a number of them have devised and worked out special experiments, the results of which are of local interest. These serve to illustrate to some extent how the schools are assisting in the solution of local agricultural problems. Accordingly, a description of a few of these experiments is included under the titles following:

VARIETY TESTS OF COTTON, SOUTHEAST ALABAMA AGRICULTURAL SCHOOL, ABBEVILLE.

This experiment consisted of a trial of 13 leading varieties of cotton. The land on which this test was made belongs to the Orangeburg type of soil. It is an intense red clay, such as is considered a typical cotton soil.

The season was favorable and the yield of all the varieties was fairly good. The land was broken "broadcast" in January with a two-horse plow. All rows were fertilized alike. The planting was done on the same day and the intercultural tillage was identical. The plats consisted of one-twelfth of an acre each. Each plat was treated with 30 pounds of an 8:2:2 fertilizer and 10 pounds of nitrate of soda. The fertilizer was applied to the soil, mixed with a "scooter," and the land bedded. The nitrate of soda was applied to the growing crop in June. The experimental plat received the same cultivation which the regular crop received. The seed cotton of the different varieties was stored in separate bins and all weighed under like conditions, to prevent any possible variation resulting from atmospheric influence in the field weights.

This experiment proved that some varieties can withstand drought better than others, while some can withstand wet weather best. To substantiate this, one may examine the bulletins of the different experiment stations for several years past and will find that no one variety remained at the head of the list for any definite period. Several varieties of long-staple cotton appear in the list. This year Cook Improved stands at the head of the list, while Shankhigh is at the bottom. It will be noticed that there is quite a difference in the value of the yield of the two varieties. The test clearly shows that Cook Improved is adapted to the Orangeburg type of soil, while the Shankhigh is not. On the Cecil soils of South Carolina and north Georgia the Shankhigh is one of the best varieties.

The following table gives the results in this test, showing that Cook and Toole are the best varieties for southeast Alabama.

Yield and value of seed cotton per acre.

Variety.	Yield of seed cotton per acre at each picking.			Total yield.	Lint per acre.	Seed.	Value of lint at 12 cents per pound.	Value of seed at 80 cents per 100 pounds.	Total value of lint and seed.
	First.	Second.	Third.						
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*			
Cook Improved	527	812	394	1,733	674	1,059	$80.88	$8.47	$89.35
Toole	538	842	335	1,715	660	1,055	79.20	8.44	87.64
Corley	468	559	533	1,558	529	1,029	63.48	8.23	71.71
King	568	647	273	1,488	530	958	63.60	7.66	71.26
Peterkin	440	462	331	1,233	468	765	57.16	6.12	64.82
Hawkins	428	482	368	1,278	442	836	53.04	6.68	60.72
Floradora	436	612	380	1,428	408	1,020	48.96	8.16	57.12
Russell	342	457	434	1,233	406	827	48.72	6.61	55.33
Truitt	357	495	346	1,208	398	810	47.76	6.48	54.24
Columbia	325	516	401	1,242	388	861	46.56	6.88	53.44
Sunflower	352	473	409	1,234	386	848	46.32	6.78	53.10
Allan long staple	363	537	412	1,312	367	945	44.04	7.56	51.60
Shankhigh	289	452	399	1,140	374	766	44.88	6.12	51.00

It will be noticed that four varieties of long-staple cotton are in the list. The prices of long-staple cotton are so irregular and uncertain that it is averaged at the same price as the short staple. The price, of course, depends upon the length of the staple and the method of growing. The local buyers were paying a premium of only 1 cent per pound this year for long-staple cotton.

EXPERIMENT WITH OATS, FIFTH DISTRICT AGRICULTURAL SCHOOL, WETUMPKA.

The oat crop of the cotton belt is not as large as it should be. It fits well into any system of farming that has cotton and corn for the main crops. A certain amount of live stock is required to furnish traction power on the farm and must be fed, hence the importance of a cheap feed crop. This crop does not require much hand labor, as it can be sown and harvested with machinery. Almost any soil will produce some oats, but they love a cool, moist, well-drained soil that has plenty of plant food. The average yield for Alabama from 1892 to 1901 was 13½ bushels per acre. This may be increased by using better seed adapted to certain types of soil and certain ranges of climate. With these two objects in view, a series of experiments was started in 1906.

Seed of 10 good varieties was secured. This was planted in small plats broadcast and in hills in October and November. To study the individuality of each variety, 2,500 hills were planted 10 by 12 inches apart. Two seeds were dropped to the hill, and as soon as they came up they were thinned to one stalk per hill. The land was a fine sandy loam with clay subsoil. The previous crop was corn and peas. In October it was harvested, and the land plowed deeply and thoroughly and harrowed. The seeds were planted October 29 by hand and germinated promptly. The varieties used for improvement were Red Algerian, Culberson Winter, Apple Rust-Proof, Burt, Black, Sixty-Day, Virginia Winter Oat, Texas Rust-Proof, White, and White No. 45, the seed being secured from different sources.

Before the oats of each plat ripened, they were studied individually and judged upon five points: Form of "stool," size of culm, quantity of foliage, freedom from disease, and prolificacy. Based upon these points, 10 stools (each including all the culms from one seed) of each variety were marked and gathered as they ripened and placed in separate packages. The seed of each package will be planted in separate rows to determine the yield and tendency to retain characters of parent plants.

Four varieties were dropped at the end of the first year because they did not seem suited for our conditions—two on account of rust, one on account of lateness of ripening and size of straw, and the other on account of small yield.

The plants from 50 successive hills taken from an ordinary row illustrate the latent power of reproduction. Though the seeds were selected, there was no uniformity in the number of oats to the panicle (or head). They ranged from none to 38 heads. They were fairly full of grain, but ranged from 1 weak culm to 29 strong ones in a stool, and from no grain to 324 grains. This experiment emphasized the importance of selecting better seed to increase the yield of grain per acre.

EFFECTS OF NITRATE OF SODA ON OATS.

The object of this experiment was to find out the amount of nitrate of soda to use most profitably as a top-dressing. Three and one-half acres of fall-sown oats were divided into half-acre plats. The soil was a silt loam, cropped in corn and peas the previous season, and fertilized with 12 bushels of green cotton seed per acre at the time of sowing. A good seed bed was prepared, and Red Rust-proof oats (Texas-grown seed) were sown broadcast the last of October at the rate of 1¾ bushels per acre. By the middle of March the oats had tillered sufficiently well to hide the ground. The nitrate of soda was applied March 31, with results as shown by the following table:

Effect of nitrate of soda on oats.

	Plat 1.	Plat 2.	Plat 3.	Plat 4.	Plat 5.	Plat 6.	Plat 7.
Amount of nitrate of soda per acre (pounds)	None.	30	50	None.	65	85	None.
Yield per acre (bushels)	19.5	26.3	30	15.5	34.7	26.3	22.5
Gain due to nitrate of soda (bushels)	.....	7.13	10.83	.....	15.53	7.13	.....

It will be noted that the best results were secured from an application of 65 pounds per acre, but under certain conditions a larger amount might prove more profitable than this. Oats respond quickly to the use of nitrate of soda. When they are sown on poor soil, a light application as a top-dressing, put on just before they begin to head, will make them grow tall enough to harvest.